

Daily GLOWBUGS

Digest: V1 #133

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](#)

%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%%

Subject: glowbugs V1 #133
glowbugs **Friday, October 10 1997** **Volume 01 : Number 133**

Date: Thu, 9 Oct 1997 11:41:20 -0500
From: w5hvv@aeneas.net (Rod Fitz-Randolph)
Subject: Re: "BA" gathering on CW...

>> Summertime brought about a shift to 40 meters to 7050 khz., then
>> some of us wandered around and used 7060 khz.

This question is asked out of ignorance and "newness" to the sport
QRPing: Is there a QRP frequency on 20, 15, or 10 meters?

Thanks for reading,

Rod, N5HV
w5hvv@aeneas.net

Date: Thu, 9 Oct 1997 14:09:20 -0400 (EDT)
From: EWoodman@aol.com
Subject: Sliding Coil Coupling

Bob,
You had mentioned in regards to adjustable coupling:
"you may want to approach the thing from a sliding coil type
of arrangement where the distance between the coils is changed (as opposed
to the rotational inductive link). The early Marconi type 100 and type 101
sets (if memory serves me correctly)".

Do you have any idea what the general mechanical arrangemet was for this? I
can do it manually but that's tough if you've got the thing in a cabinet. The
rotating link controllable from the front panel was pretty easy to accomplish
but everything I've thought of for this other arrangement is pretty "clunky".

Tnx Eric

Date: Thu, 9 Oct 1997 11:52:40 -0700
From: "Bowman, Jim" <Jim_Bowman@Mukilteo.HAC.com>
Subject: RE: (Regen Chokes) now Headsets

Speaking of headsets, does anyone have any info on the earpiece elements
from the Ma Bell telephones that you could just unscrew the earpiece cap
and out comes the element? I wonder what impedance they are? They seem
to be well made and heavy ... might be useful for a home brew headset if
they aren't too low impedance.

Jim W7HPK
Jim_Bowman@Mukilteo.HAC.COM

> -----
> From:
> rdkeys@csemail.cropsci.ncsu.edu[SMTP:rdkeys@csemail.cropsci.ncsu.edu]
> Sent: Thursday, October 09, 1997 7:32 AM
> To: hamradio@mm1001.theporch.com

> Cc: rdkeys@csemail.cropsci.ncsu.edu; glowbugs@www.atl.org
> Subject: Re: Regen Chokes
>

> <BIG SNIP>

> > I have a pair of headphones with cotton covered cord that might be
> neat
> > for the audio output they are ACME Trim Inc. Libertyville, ILL. Do
> you
> > know what these are. I would guess that they are 2000 ohm or such.
> What do
> > you know about them.
>
> The Acme sets should be fine. I would expect them to be 1000 or 2000
> ohms,
> for the most part. At low plate voltages, even 600 ohm headsets work
> very
> well in regen service, as the plate load of the final audio stage. I
> don't
> get real good response out of 300 ohm headsets or 8 ohm headsets, even
> when
> coupling with 10ufd condensers. But, your Acme's should do fine. I
> have
> tested a number of different Trimm headphones on xtal sets, and found
> that
> the Trimm headphones with the small magnets and cases were nowhere
> near as
> good as the Trimm headphones with the heavier magnets and cases.
> Hint....
> the heavier your headphones, the better they will usually be. Also,
> the
> larger the diaphragms, the better they will usually be, for regen
> service.
>
> > Kevin Pease
> > WB0JZG
> > Mount Juliet, TN.
>
> Bob/NA4G
>
>
>

Date: Thu, 9 Oct 1997 17:27:46 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: Sliding Coil Coupling

>
> Bob,
> You had mentioned in regards to adjustable coupling:
> "you may want to approach the thing from a sliding coil type
> of arrangement where the distance between the coils is changed (as opposed
> to the rotational inductive link). The early Marconi type 100 and type 101
> sets (if memory serves me correctly)".
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> Do you have any idea what the general mechanical arrangemet was for this? I
> can do it manually but that's tough if you've got the thing in a cabinet. The
> rotating link controllable from the front panel was pretty easy to accomplish
> but everything I've thought of for this other arrangement is pretty "clunky".
>
> Tnx Eric
>

There are two ways that Marconi did this, plus some I tried.

1. Use a thin wire and slide the coils end to end closer or apart.
It requires a track mechanism or a hanger wire and some sort of
knob or crank to do it. The early Type 100 or 101 used that method.
The later Type 106 used a metal track and gear bar mechanism that
slid the coils together or apart (probably beyond the average
glowbuggite reconstructor).
2. An alternate way, as used in the SE and IP series receivers is to
have two coils physically apart but have a set of say 3 turns each
with taps on each coil and then tap up, accordingly with a short
interconnect (call it ancient days link coupling). Separate the
coils inductively by shielding.
3. Another way that I have tried that worked sort of, was to hinge

one coil so that it could swing out of the way from one end, and then have a short pushrod to move the coil about, relative to the main coil. I think that was in a Radio News hint back in time.

4. Another way that I found works, is to make a long coil form for the secondary coil and then wind a primary on a thin piece that will slide along on the long coil form, as desired. You can play with the sizes of pvc pipe or whatever to get reasonable fits.

See Elmer Bucher's Practical Wireless Telegraphy, 1917, for more details on these ideas.

My ways are crude, but they mostly work. Marconi's ways were elegant, but complex mechanically. If they shake, it may not work well at higher HF frequencies. The SE/IP setups are probably good up to 40M or so, before stray capacity effects begin to crop up.

I really like the Marconi methods, but have yet to get one made up, in practice. I was thinking that the long coil form, with the second sliding form for the primary, hung on a piece of dial cord with a front panel knob might work pretty well.

Make sure you use good flexible wire on the moving parts where connections are to be made. In the early days, they wound short pigtailed to give slack, and often used very multi-stranded or braided wire for flexibility.

The point is to be creative, and scope out the ancient texts.....(:+)}.....

Good Luck

73/ZUT DE NA4G/Bob UP

Date: Thu, 09 Oct 1997 23:33:03 GMT
From: wrt@eskimo.com (Bill Turner)
Subject: Re: Hartley Using an 813

On Fri, 3 Oct 1997 19:10:03 -0500, w5hvv@aeneas.net (Rod =46itz-Randolph) wrote:

>Hi, folk! I have found, in my junk box, what appears to be a pristine
>813, in the box! I read on one of the Glowbug e-mail messages
>something about using an 813 as a Hartley oscillator. Is it feasible?
>Is it practical? What sort of voltages should I use? Do I need to
>tie the screen and plate together so that it will be a de facto triode?
>
>Please clue me in. All the chatter about a Hartley has me really =
curious
>to build one and use it on the air!
>
>Thanks,
>
>
>Rod, N5HV
>w5hvv@aeneas.net
>

Actually, it should work reasonably well. I've never done it with an 813, but I would watch out for two problems:

1. There will be a relatively large amount of circulating current in the grid tank circuit so the frequency will drift a lot because of heating of the coil. Keep the coil well away from the tube and any other heat-generating sources and it would probably be good to put a fan on it as well.

2. Keying it without killing yourself could be a problem :-). You probably should use a relay for the actual keying.

Good luck and let us know how it works out!

73, Bill W7TI

Date: Thu, 9 Oct 1997 17:04:38 -0700 (PDT)
From: Ken Gordon <keng@uidaho.edu>
Subject: Re: Hartley Using a 304TL

> Actually, it should work reasonably well. I've never done it with an

> 813, but I would watch out for two problems:
>
> 1. There will be a relatively large amount of circulating current in
> the grid tank circuit so the frequency will drift a lot because of
> heating of the coil. Keep the coil well away from the tube and any
> other heat-generating sources and it would probably be good to put a
> fan on it as well.
>
> 2. Keying it without killing yourself could be a problem :-). You
> probably should use a relay for the actual keying.
>

The above ought to be REALLY interesting!!!!!! with a 304TL. Wonder if
it will work at all...

Lessee....3000 vdc at 500 ma (for short periods)...ought to drift like
crazy and would need one HECK of a relay for keying....

:-)

Ken W7EKB

Date: Fri, 10 Oct 1997 10:39:41 +1000
From: Murray Kelly <mkelly@powerup.com.au>
Subject: Re: Sliding Coil Coupling

I have been looking at a couple of glue stick formers that
caught my eye. They are the 'paste stick' type and there is
a lead thread which moves the stick in and out as you rotate
the knob at one end.

It is all very snug with little backlash. I even slipped a
.5" toroid into the cup where the glue stick sits normally.

This would perhaps be the basis for a PTO oscillator, or
without the toroid an antenna coupler - just a thought.

Mounting it could be fun!
rdkeys@csemail.cropsci.ncsu.edu wrote:
snip-----

> 4. Another way that I found works, is to make a long coil form for
> the secondary coil and then wind a primary on a thin piece that will
> slide along on the long coil form, as desired. You can play with
> the sizes of pvc pipe or whatever to get reasonable fits.
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> See Elmer Bucher's Practical Wireless Telegraphy, 1917, for more
> details on these ideas.
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> but complex mechanically. If they shake, it may not work well at h>
> The point is to be creative

* Murray Kelly vk4aok mkelly@powerup.com.au *
* 29 Molonga Ter. / Graceville/ QLD. 4075/ Australia *
* ph/fax Intl+ 61 7 3379 3307 *

Date: Thu, 9 Oct 1997 18:39:02 -0500 (CDT)
From: Kevin Pease <hamradio@mm1001.theporch.com>
Subject: Re: Regen Chokes

I tested the ACME Earphones on my nc-173 in the headphone jack which is 8
ohms and they were terrible. Could hardly hear anything with the gain way
up. The magnets don't seem real strong. Could that caus problems or is the
problem just a gross mismatch in impedance. Somewhere I think that I have
some old mill earphones with rubber ear cups that worked much better on an
old regenerator that I built when I was much younger. I think that the
ACME's may be a lost cause. I do have some 14,000 gauss rare earth magnets
that would be used to bolster the magnets if you think that that would
help.

Kevin Pease
WB0JZG
Mount Juliet, TN.

Date: Thu, 9 Oct 1997 22:01:05 -0400 (EDT)
From: EWoodman@aol.com
Subject: Re: Sliding Coil Coupling

Bob,

Thanks for the ideas. A couple are similar to what I was thinking of. One was to use the sliding tubes method as you mentioned with the secondary wound on one end of one tube and the primary on a slightly larger tube which slides over it. Some sort of dial cord type mechanism to move it. The other was to fashion some sort of track with a rack and pinion type of mechanism to move it. I've been eyeing a rack and pinion set which I have which was originally designed to focus a large reflecting telescope eyepiece.

I don't know, maybe this is all a waste of time. You can obviously get good performance without going to such lengths. I'm sure you've proven that with your sets. The set I have in front of me now has the secondary and tickler on a 2" piece of pvc (2.375" o.d.) and has a single 3 1/2" diameter loop of bare #14 wire spaced around it to couple the antenna. It works fine. I just have a hankering to build a set with tuned primary and secondary and variable coupling. Besides it gives me something else to fool around with.

I'll keep working on it and see what happens. By the way where does one find a copy of Elmer Bucher's Practical Wireless Telegraphy? Are there only the originals or have there been reprints?

Tnx and 73 Eric KALYRV

Date: Thu, 9 Oct 1997 23:11:56 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: Regen Chokes

> I tested the ACME Earphones on my nc-173 in the headphone jack which is 8
> ohms and they were terrible. Could hardly hear anything with the gain way
> up. The magnets don't seem real strong. Could that cause problems or is the
> problem just a gross mismatch in impedance. Somewhere I think that I have
> some old mill earphones with rubber ear cups that worked much better on an
> old regenerator that I built when I was much younger. I think that the
> ACME's may be a lost cause. I do have some 14,000 gauss rare earth magnets
> that would be used to bolster the magnets if you think that that would
> help.

The mismatch between 8 and 2000 ohms is pretty stiff. If you took a plate to voice coil transformer and reversed it into the nc-173, then you should hear a great deal more. The mismatch then, would be minimal. You could even tune the output transformer plate side that you used to step 8 ohms back up to several thousand ohms and ring the tin cans. Even a line to voice coil (8 to 600 ohms) backwards into the nc-173 would perk up the output considerably.

Play project..... take a transformer like the above and tune it to your tin cans and see how it makes them purr.... Loosen the tin cans until they both co-resonate at a reasonable frequency (I like about 500 cycles) and then ring the transformer on that..... A po'boyz audio filter from the 1920's. You can take it to extremes and make the tin can resonate to a tuned air cylinder to which a stethoscope is attached. That was popular in the early 20's as an audio filter.

Even early xtal sets such as the SE-143 and SE1220 used tuned audio, but it was not called that, back then. It was used to ring the tin cans on a spark signal and thereby decrease adjacent channel spark interference. Back then it was known as the telephones stopping condenser, if memory serves me correctly.

But, if your regen is selective anyway, you don't need much audio filtering. Some will help to add skirt selectivity to the audio passband, if desired.

For fun, on your regen output circuit, add about 0.02 to 0.10 ufd across the tin cans and see what effect it has on the audio passband. It should shunt the high frequency response to ground and make the bass or medium audio frequencies have more presence.

Bob/NA4G

Date: Fri, 10 Oct 1997 00:10:08 -0600 (MDT)

From: Shane <toyboat@freenet.edmonton.ab.ca>
Subject: Re: Sliding Coil Coupling

On Thu, 9 Oct 1997 EWoodman@aol.com wrote:

> Bob,
> Thanks for the ideas. A couple are similar to what I was thinking of. One was
> to use the sliding tubes method as you mentioned with the secondary wound on
> one end of one tube and the primary on a slightly larger tube tube which
> slides over it. Some sort of dial cord type mechanism to move it. The other
> was to fashion some sort of track with a rack and pinion type of mechanism to
> move it. I've been eyeing a rack and pinion set which I have which was
> originally designed to focus a large reflecting telescope eyepiece.

Instead of the sliding arrangement, you could more easily use the
pivoting arrangement, where the primary is in line with the grid
coil at full coupling, but is revolved out of line to reduce the
coupling.

One way to do this is to wind the primary on one end of a PVC tube
and drill a hole at the other end so that the tube can be fastened
to a partially threaded brass rod. Nuts, washers, etc. fasten the
tube to the rod. A panel bearing provides the pivot point, as well
as a means of attaching a control knob. A coil spring on the shaft,
between the panel and tube, would tension the assembly so it would
hold its adjustment. By making the PVC tube for the primary as long
as practical, the circle that the other end revolves through becomes
greater, allowing the coil end of the form to be placed as close as
possible to the secondary coil form, while still allowing the ends of
both coil forms a sufficient clearance gap for primary movement.

If both coils were horizontal at maximum coupling, the primary would
be at a vertical position, or at 90 degrees to the secondary, at nil
coupling. In practice, I would think the actual useful range of
movement would be less than 45 degrees.

Solid, easy to construct. Saw it in an old magazine somewhere.

~~~~~  
Shane <toyboat@freenet.edmonton.ab.ca>  
~~~~~

Date: Fri, 10 Oct 1997 10:21:41 +0200
From: Jan Axing <janax@li.icl.se>
Subject: Re: Hartley Using a 304TL

Ken Gordon wrote:

> > Bill:
> > 2. Keying it without killing yourself could be a problem :-). You
> > probably should use a relay for the actual keying.
> >
> >
> The above ought to be REALLY interesting!!!!!! with a 304TL. Wonder if
> it will work at all...
> >
> Lessee....3000 vdc at 500 ma (for short periods)...ought to drift like
> crazy and would need one HECK of a relay for keying....

I have a source here in Sweden selling NOS 4-65A cheap at around \$13
each.

Maybe another tube for a crazy Hartley?

Jan, SM5GNN

Date: Fri, 10 Oct 1997 08:02:38 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
Subject: Re: Sliding Coil Coupling

Hi, Gang!

It seems as if the proposed mechanical arrangements get more complex and farther out with every go-round!

Just say no; ya don't need a degree in mechanical engineering nor a shop full of fancy power tools to arrange variable coupling.

In the '35 "Radio" Handbook," edited by Frank Jones, Clayton F. Bane describes a couple of methods. The hairiest is the input to the "Noise-Free Autodyne" set, so we'll start there:

Picture if you will a base of flat material (masonite or thickish aluminium) about 8"x10"; at one end, we mount the usual sort of 140pF variable condenser. At the other is a little metal box about 3"x3"x2". the box is mounted centered on a short side of the base, all the way at one end, with a 3"x2" face down and a 3"x3" face pointed to the far end of the base where the condenser is living. In that 3"x3" face, a 2" round hole is cut. Over that hole, we mount a "comb" type Faraday Screen, just a hunk of manila or cardstock with the parallel wires doped to it, and all bussed together to earth at one end. Inside the box, and right up against the blank side of the screen, is a 2-turn link (on a cut-down coil form, old pill bottle, whatever), with a shielded twisted pair connected to it (shield to box, pair to link) that runs over to a similar link on the receiver's tank coil.

Outside the box, there's a coil suited to the band in use, mounted so that its axis coincides with the axis of the link hiding in the box. [*] This is done by supporting a ceramic plate type socket on a couple of 1/8" or so Bakelite rods (you can by Fiberglas ones now--don't snort the dust when you cut it), which run through the holes usually used to mount the socket. The rods are about twice as long as the (short, and wound right at the top end) coil form and socket, to give you enough variation in coupling.

The rods are themselves supported on four uprights made of Bakelite. (You could probably 6-32 thread the ends that are next to the box and use the box itself to support 'em at that end). Coil is in parallel with the condenser, via some stranded-wire leads. Antenna connects to one end of this tank, earth to the other. To change the coupling, slide the coil. If you're really paranoid, you could glue a little plastic "handle" to the socket so you could keep your hand away.

That's all there is to it. No leadscrews, linkages, dial-cord, springs, magic incantations or oxygen-free-range wire.

The other way is even simpler: Frank C., Clayton F. and the usual gang would take their coil form and slice off about the top quarter. The bottom part gets the tank & tickler (if used), and plugs into a socket as usual. The top part, we wind a little link on and fasten a rod (Bakelite, plastic, Fiberglas, etc) to it with whatever method suits us (epoxy, tiny screws, milkweed sap, etc.). You can mount the rod any old how--the old pix show about a 50/50 mix of tangent & center-cross. Then when you build up the receiver, you leave room in front of the coil-socket, and mount on the front panel a 1/4" phone jack at such height and position that the rod & sawn-off top of the form will be located over the sawn-off bottom of it when the bottom is plugged into the socket and the top/rod assembly is slid into the phone jack from the back. Put a knob on the rod, and slide and/or twist to vary the coupling. (The smart folks leave enough room between coil and panel to slide the top part forward out of the way so you can change bands without having to take the radio apart).

It could not get too very much simpler, and it uses no unobtainium. If you don't have a plastic supplier locally (hmpf! They're everywhere), go buy new shoes--most dress shoes have a plastic rod in 'em to hold the shape in before purchase, and the rods are 6mm to 1/4" diameter. The smaller size, you might have to stick some heat-shrink on if it's too loose. Coil forms, hit up a pharmacist if you can't find 'em anywhere else. Try for the older, clear polystyrene pill bottles, as they're better for coils and worse for pills. AES has coil forms, but they're shorter than the old ones--might need to buy a spare for the moveable-link part. They've got the good sockets, too. If you don't have and cannot find ordinary, U-spring 1/4" phone jacks, I'm not sure whether I don't want to talk to you, or want to send you a couple three; you can just about pick 'em up in the ditches at hamfests, Radio Shack has 'em, Ted's Bar & TV Repair on the corner has a shoebox full, and at least two of the yammerheads on your local repeater have actually seen them once.

It's not rocket science. The OTs who came up with this stuff didn't need anything too much fancy to make it work and neither do we.

73,

--Bobbi

(Who is just ever so slightly testy this fine AM--something about me being awake at 4:30 but 40m being asleep, I think, or the repeater guy the other night who thunk a \$1K investment in computer & code-reading software otta get him a waiver on the code, 'specially as he has tinnitis, and didn't wanna hear he could take the test with a light and/or vibrating surface if he needed to. Grrrrrrrrr! Hangnails! Etc.)

* For Monty Python fans, the ambiguity is *not* in the box. Dune fans, pain ain't in it either. The rest of you, get back to work, you're not gettin' paid to read footnotes. :)

Date: Fri, 10 Oct 1997 07:16:43 -0600
From: Dexter Francis <cwest@xmission.com>
Subject: Re: Sliding Coil Coupling

Greetings all -

This pivoting coupling method was used in the ARC-5 transmitters. They all have a ceramic coil form with three (maybe 4) sets of windings, the innermost being on a smaller, rotatable form wich is driven of a dial on the front panel.

- df

Visit our Web site at <http://www.xmission.com/~cwest/>
e-mail to: tubes@usa.net -or- cwest@xmission.com
(P.O. Box 22443, Salt Lake City, Utah 84122)

Date: Fri, 10 Oct 1997 09:16:51 -0500
From: Steve Linscott <linscot@is.rice.edu>
Subject: Re: Hartley Using an 813

>Actually, it should work reasonably well. I've never done it with an
>813, but I would watch out for two problems:

>

>1. There will be a relatively large amount of circulating current in
>the grid tank circuit so the frequency will drift a lot because of
>heating of the coil. Keep the coil well away from the tube and any
>other heat-generating sources and it would probably be good to put a
>fan on it as well.

>

>2. Keying it without killing yourself could be a problem :-). You
>probably should use a relay for the actual keying.

>

>Good luck and let us know how it works out!

>

>73, Bill W7TI

I know it's cheating, but the ARRL Handbooks (at least in the 80's) have a keying circuit using a horizontal output transistor (2SC1308, \$4.95 @ Radio Shack) and another GP transistor. It will switch 10 amps at 1500 volts, and has a shaping circuit. You can build it in a small black metal case, with a 9 volt battery inside, a key jack on one end, and a cable with a phone plug coming out the other end. It doesn't look out of place beside a glowbug rig. I have keyed a pair of 807's at 750 volts and 200 ma, and it works very well. Of course, it can also be built into the rig. I know "purists" will object, but low voltage on the key and no key clicks are the benefits.

73 de W5EGP

- - Steve -

* Steve Linscott Divisional Consultant Natural Sciences
*
* Rice University 6100 South Main Street Houston, Texas 77005-1892
*
* Phone: (713) 527-4985 FAX: (713) 527-6099 Email: linscot@rice.edu *

Date: Fri, 10 Oct 1997 08:48:42 -0700 (MST)
From: Jeff Duntemann <jeffd@coriolis.com>
Subject: Re: Sliding Coil Coupling

At 10:39 AM 10/10/97 +1000, Murray Kelly wrote:
>I have been looking at a couple of glue stick formers that
>caught my eye. They are the 'paste stick' type and there is
>a lead thread which moves the stick in and out as you rotate
>the knob at one end.
>
>It is all very snug with little backlash. I even slipped a
>.5" toroid into the cup where the glue stick sits normally.
>
>This would perhaps be the basis for a PTO oscillator, or
>without the toroid an antenna coupler - just a thought.

I actually tried this a few years ago, and while it worked there is the problem that the fit of the screw into the device is very loose, and there's no easy way I could devise to tighten it up. (The glue stick itself provided a sort of self-lubricated friction brake--but once the glue is gone it's just a loose screw/nut fit.) The slightest vibration causes the toroid to move around. I'd trust it for an antenna coupler but NOT for any sort of oscillator frequency determination.

I'd suggest using 1/4-20 nylon bolts and nuts to set up a permeability tuning system. Most good hardware stores have them and they give you a lot more control over the nature of the fit.

- --73--

- --Jeff Duntemann K7JPD
Scottsdale, Arizona

Date: Fri, 10 Oct 1997 10:38:35 -0700
From: Walt Turansky <turansky@xroads.com>
Subject: Plate plucking vs. series capacitors

I plucked the plates from a capacitor last night to reduce it to a single plate tuning cap for the UY-227 detector and one step that I will start building this weekend. I started to think that maybe I should have just put a 25 pF trimmer in series with the tuning cap and that way I would have variable band edge setting capability.

Anybody have experience one way or the other?

73 de N7QFN,
Walt

End of glowbugs V1 #133

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Created by Steve Modena, AB4EL
Comments and suggestions to modena@SunSITE.unc.edu
